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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/017,883 | 12/13/2001 | Robert K. Chen | Chen 10-13-24 | 9054 |

22186 7590 02/09/2004

MENDELSON AND ASSOCIATES PC
1515 MARKET STREET
SUITE 715
PHILADELPHIA, PA 19102

EXAMINER

BRINEY III, WALTER F

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2644

2

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/017,883

Applicant(s)

CHEN ET AL.

Examiner

Walter F Briney III

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-9, 10-11, 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snow (US Patent 6,418,221) in view of Stewart (US Patent 3,855,431).

Claim 1 is limited to **an interface circuit for interfacing between a pair of subscriber tip/ring lines and a central office of a telecommunications network**. Snow discloses both a high and low-pass filter (i.e. **filter circuitry**) (figure 4, elements 106 and 109) that separate POTS and DSL signals (i.e. **configured to separate low-frequency and high-frequency signals**) on tip and ring lines (i.e. **appearing on the tip/ring lines**) (figure 4, elements 10 and 11). Snow discloses a high-pass filter (i.e. **filter circuitry**) with a **blocking** capacitor (figure 4, element 106) that inherently **affects the low-frequency impedance of the tip/ring lines**. Snow discloses a hybrid and CODEC designed for (i.e. **high-frequency interface circuitry configured to process...**) (figure 4, elements 107 and 108) DSL signals (i.e. **the high-frequency signals**). Snow discloses a **SLIC** and **CODEC** designed for (i.e. **and low-frequency interface circuitry configured to process...**) (figure 4, elements 103 and 105) POTS signals (i.e. **the low-frequency signals**). Therefore, Snow discloses all limitations of

the claim with the exception of **an impedance warping circuit configured between the SLIC and the CODEC**. Stewart teaches balancing the impedance between a subscriber line and terminal circuitry thus canceling unwanted signals (column 1, lines 26-65). Stewart's method of impedance matching provides amplification free from oscillation while using only two amplifiers (column 1, lines 57-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to balance the impedance between a line and termination as taught by Stewart, where the line and impedance represent the POTS lines and SLIC/CODEC of Snow, for the purpose of removing unwanted signals. Stewart teaches an impedance matching circuit (i.e. **IWC**) that inherently compensates for any load on the tip and ring lines, including the blocking capacitor of the high-pass filter (i.e. **wherein the IWC tends to compensate for the effect of the blocking capacitor on the low-frequency impedance between the tip/ring lines**). Therefore, Snow in view of Stewart makes obvious all limitations of the claim.

Claim 2 is limited to **the invention of claim 1**, as covered by Snow in view of Stewart. Stewart teaches an impedance matching circuit that balances the impedance between a line and a termination point to remove unwanted signals (i.e. **wherein the compensation provided by the IWC provides a desired impedance between the tip/ring lines for both the low-frequency and high-frequency signals**). Therefore, Snow in view of Stewart makes obvious all limitations of the claim.

Claim 4 is limited to **the invention of claim 1**, as covered by Snow in view of Stewart. Snow discloses DSL signals (i.e. **wherein the high-frequency signals**

correspond to DSL signals...) that are greater than about 4 kHz and POTS signals (i.e. the low-frequency signals correspond to POTS signals...) that are less than about 4 kHz (column 1, lines 18-24). Snow discloses splitting the signals with a high-pass filter configured to provide the DSL signals to the high-frequency interface circuitry and a low-pass filter configured to provide the POTS signals to the low-frequency interface circuitry (column 4, lines 3-12). Snow discloses a high-pass filter with a blocking capacitor (figure 4, element 106). Therefore, Snow in view of Stewart makes obvious all limitations of the claim.

Claim 5 is limited to **the invention of claim 1**, as covered by Snow in view of Stewart. Stewart teaches an impedance matching circuit (i.e. **IWC**) (figure 1) that is coupled to a first differential transformer (i.e. **the SLIC**) that receives signals from the tip and ring lines (i.e. **is configured to receive a first differential signal from the SLIC**) and a second differential transformer that receives signals from the CODEC (i.e. **and a second differential signal from the CODEC**). The impedance matching circuit outputs a differential signal to the first transformer (i.e. **and generate a third differential signal provided to the SLIC**) (column 2, lines 16-44). Therefore, Snow in view of Stewart makes obvious all limitations of the claim.

Claim 6 is limited to **the invention of claim 5**, as covered by Snow in view of Stewart. Stewart teaches a **first amplifier** (figure 1, element A2) that generates an **output** based in part on the signal received from the second differential transformer (i.e. **configured to generate a first single-ended output signal based on the second differential output signal**) (figure 1, element T2). Stewart teaches a **second amplifier**

(figure 1, element A1) that generates an **output** based on the signal received from the first differential transformer (i.e. **configured to generate a second single-ended output signal based on the first differential output signal**) (figure 1, element T1).

The output of the second amplifier is coupled to the first amplifier and the output of the first amplifier generates the signal applied to the first differential transformer (i.e.

wherein the first and second single-ended output signals are used to generate the third differential output signal). Therefore, Snow in view of Stewart makes obvious all limitations of the claim.

Claim 7 is limited to **the invention of claim 6**, as covered by Snow in view of Stewart. Stewart teaches a **first operational amplifier** (figure 1, element A2) that inverts a portion of the differential signal from the speech path (i.e. **configured as an inverter**) and a **second operational amplifier** (figure 1, element A1) that inverts a portion of the differential signal from the trunk. Stewart teaches a band-pass circuit connected between the output and input of the second amplifier (figure 2, element A21) (i.e. **as a frequency-dependent inverter**) (column 3, lines 19-24). The signal applied to the transformer T1 (i.e. **the third differential output signal...**) will **increase** in frequency when the POTS signal (i.e. **the low-frequency signals**) from the speech path **increases** in frequency. Therefore, Snow in view of Stewart makes obvious all limitations of the claim.

Claim 8 is limited to **the invention of claim 7**, as covered by Snow in view of Stewart. Stewart teaches a band-pass circuit connected between the **output and**

inverting input of the **second amplifier** (figure 1, element A1). The band-pass circuit includes a **resistor and capacitor in parallel** (figure 2, element A21).

Claim 9 is limited to **the invention of claim 6**, as covered by Snow in view of Stewart. Stewart teaches a first transformer (i.e. **an output filter**) (figure 1, element T1) that filters the **single-ended output** of the **first amplifier** (figure 1, elements A2). Therefore, Snow in view of Stewart makes obvious all limitations of the claim.

Claims 10, 11, and 13-18 are essentially the same as claim 1, 2, and 4-9, respectively, and are rejected for the same reasons.

Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snow in view of Stewart and further in view of Junek (US Patent 3,867,589).

Claim 3 is limited to **the invention of claim 2**, as covered by Snow in view of Stewart. Junek teaches matching impedances on a telephone network to a standard of **900 ohms** in series with **2.16 microfarads** (column 3, lines 6-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the standard 900 ohms and 2.16 microfarads as taught by Junek to balance the impedance of the tip/ring pair and the POTS circuitry.

Claim 12 is essentially the same as claim 3 and is rejected for the same reasons.

Conclusion

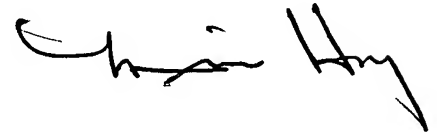
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.



WFB
1/29/04

MINSUN OH HARVEY
PRIMARY EXAMINER